

REMARKS

STATUS OF THE CLAIMS

[0001] Claims 1-7 and 11-24 remain in the case and stand rejected. The Office Action rejected Claims 1-7 and 11-24 under 35 U.S.C. §103(a) as obvious in view of U.S. Patent App. No. 2003/0208284 to Stewart et al. (Hereinafter “Stewart”) in view of U.S. Patent App. No. 2004/0205120 to Dar et al. (Hereinafter “Dar”).

AMENDMENTS TO THE CLAIMS

[0002] Claims 1, 3-7, 11, 13-17, 18, and 20-24 have been amended to clarify embodiments of the invention. Certain of these amendment will be discussed in more detail in relation to the corresponding rejection. Applicant is not conceding that the subject matter encompassed by Claims 1, 3-7, 11, 13-17, 18, and 20-24, prior to this amendment is not patentable over the art cited by the Examiner. Claims 3, 5-7, 13, 15-17, 20, and 22-24 were amended for clarity and consistency with other claim amendments made. No new claims are added and Claims 8-10 and 21 are canceled.

REJECTION OF CLAIMS 1-7 and 11-24 UNDER 35 U.S.C. §103(a)

[0003] The Office Action rejected Claims 1-11, and 11-24 under 35 U.S.C. § 103(a) as being unpatentable over Stewart in view of Dar. Applicants respectfully traverse these rejections.

[0004] The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. MPEP at § 2142. The factual inquiries for determining obviousness are summarized as follows:

1. Determine the scope and content of the prior art.
2. Determine the differences between the prior art and the claims at issue.
3. Resolve the level of ordinary skill in the pertinent art.
4. Consider objective evidence present in the application indicative of obviousness or nonobviousness.

Graham v. John Deere Co., 383 US 1, 148 USPQ 459 (1966).

[0005] Applicants assert that the Office Action fails to establish a *prima facie* case of obviousness, particularly in view of the submitted clarifying amendments, first because not all elements of the amended claims are taught or suggested in the art of record, and second, because the factual inquiry of Graham weighs in favor of nonobviousness.

SCOPE AND CONTENT OF THE ART

[0006] The first reference, Stewart appears to be for optimizing the configuration of a computer system, such as a web farm. See Stewart Abstract. Stewart uses a simulator and allows different optimization modules to be plugged into the Stewart system. *Id.* Stewart caches simulation and/or optimization results to facilitate reuse. *Id.*

[0007] The next reference, Dar, appears to be a system for mapping programs that provide certain services to different servers connected in a network to provide basic load balancing. See Dar Abstract. Specifically, Dar appears to treat a grouping of possible mappings for programs as a search space. Dar Para. [0033].

DIFFERENCES BETWEEN THE PRIOR ART AND THE CLAIMS AT ISSUE

[0008] The Applicants respectfully assert that the art of record fails to teach or disclose each element of the claimed invention as required under 35 U.S.C. § 103(a).

[0009] Applicants respectfully submit that Claim 1 recites features not taught or suggested in the art of record. Claim 1 as amended states:

1. (Currently Amended) A method implemented on a processor and a memory programmed for autonomic identification of an optimum hardware configuration for a Web infrastructure, said method comprising ~~the steps of~~:
 - (a) establishing a plurality of performance objectives and a plurality of best practice rules for ~~said a~~ Web infrastructure;
 - (b) **establishing a search space** and a **current configuration performance index value** within said search space;
 - (c) searching a **database** of available **hardware models** for ~~finding~~ a best-fit configuration based on said established plurality of best practice rules and based on said established **current configuration performance index value**, each hardware model having an associated **relative performance index value**;

- (d) calculating performance data of said found best-fit configuration using a performance simulator;
- (e) comparing said calculated performance data to said established plurality of performance objectives; and
- (f) if in response to said calculated performance data meeting ~~meet~~ said established plurality of performance objectives, designating said best-fit configuration as an ~~said~~ optimum hardware configuration; and otherwise, repeating steps (b) thru (f) until said search space is exhausted.
in response to said calculated performance data not meeting said established plurality of performance objectives, **narrowing said search space** and repeating steps (b) thru (f) until said search space is exhausted or a best-fit configuration is designated.

(emphasis added)

The amendments to Claim 1 find support in at least these locations, the specification on page 12, ll. 19-21, Page 3 ll. 20-21 and Page 12, ll. 3-13, Page 12, line 1, Page 11, lines 15, 19, and Page 13, lines 15-18.

[0010] As agreed in the interview, the art of record fails to teach “searching a **database** of available hardware models...each hardware model having an **associated relative performance index value**” (emphasis added).” Stewart and Dar fail to teach or disclose a “performance index,” and in particular a “current configuration performance index” and a “relative performance index.” The relative performance index is defined in the specification on page 3 ll. 20-21 and page 12, ll. 3-13. Thus, a relative performance index represents the performance of a hardware model in relation to other hardware models. Applicants submit that this index concept as originally claimed can be clarified. Consequently, Applicants have amended Claim 1 to clarify that each hardware model includes a relative performance index and that the index is a specific value and not a grouping or table of data.

[0011] The limitation of a “current configuration performance index” builds on the limitation of a relative performance index. Specifically, the “current configuration performance index” is defined as a performance index for the whole hardware configuration. See Page 12, line 1. The “current configuration performance index” is calculated by multiplying the number of nodes in the configuration by the performance index of the hardware model being evaluated. See Page 11, lines 15, 19, page 13, lines 15-18.

[0012] In addition, as was also agreed in the interview, the art of record fails to teach or disclose “establishing a search space” and “narrowing said search space.” Applicants note that the Examiner relies on Dar for the teaching of a search space. Applicants submit that a grouping of possible mappings between programs and servers for load balancing taught in Dar is fundamentally different from a search space of hardware relative performance indexes as recited in amended Claim 1.

[0013] Applicants have amended Claims 4 and 14 to clarify the definition of search space as is supported in the specification on page 12, ll. 19-21. In addition, Applicants have amended Claim 18 to recite the same limitation as in Claims 4 and 14. Applicants found no such teaching or suggestion of a search space in Stewart or Dar. Consequently, Applicants submit that Claims 4, 14, and 18 as amended represent nonobvious innovation over Stewart and Dar for at least this limitation regarding search space.

[0014] Applicants have amended Claim 1 to clarify that if the calculated performance data does not satisfy the performance objectives, the search space is narrowed and steps b-f are repeated. Alternatively, if the calculated performance data does satisfy the performance objectives, a best-fit configuration is designated.

[0015] Because the art of record fails to teach the limitations of Claim 1, Claim 1 is not obvious over the art of record. Amendments have been made to independent Claims 11 and 18 consistent with those made to Claim 1. Therefore, independent Claims 11 and 18 are allowable for at least the same reasons as Claim 1 as explained above. Consequently, Applicants respectfully requests that the rejection of Claims 1, 11 and 18 under 35 U.S.C. § 103(a) be withdrawn.

[0016] Furthermore, Claims 2-7, 12-17, and 19-24 depend from independent claims that are allowable, as described above. *See In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Consequently Applicant requests that the rejection of dependent Claims 2-7, 12-17, and 19-24 under 35 U.S.C. § 103 be withdrawn.

[0017] Applicants respectfully submit that Claims 1, 3, 6, 11, 13, 16, 18, 20, and 23 recite “best practice rules” and a “best-fit configuration” which are not taught or suggested in the art of record. Because the art of record fails to teach the limitations of Claims 1, 3, 6, 11, 13, 16, 18,

20, and 23, Applicants respectfully requests that the rejection of Claims 1, 3, 6, 11, 13, 16, 18, 20, and 23 under 35 U.S.C. § 103(a) be withdrawn.

LEVEL OF ORDINARY SKILL IN THE ART

[0018] The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. Factors that may be considered in determining the level of ordinary skill in the art may include: (A) "type of problems encountered in the art;" (B) "prior art solutions to those problems;" (C) "rapidity with which innovations are made;" (D) "sophistication of the technology; and" (E) "educational level of active workers in the field. In a given case, every factor may not be present, and one or more factors may predominate." *In re GPAC*, 57 F.3d 1573, 1579, 35 USPQ2d 1116, 1121 (Fed. Cir. 1995); *Custom Accessories, Inc. v. Jeffrey-Allan Industries, Inc.*, 807 F.2d 955, 962, 1 USPQ2d 1196, 1201 (Fed. Cir. 1986); *Environmental Designs, Ltd. V. Union Oil Co.*, 713 F.2d 693, 696, 218 USPQ 865, 868 (Fed. Cir. 1983).

[0019] As stated in the MPEP, the "hypothetical 'person having ordinary skill in the art' to which the claimed subject matter pertains would, of necessity have the capability of understanding the scientific and engineering principles applicable to the pertinent art." *Ex parte Hiyamizu*, 10 USPQ2d 1393, 1394 (Bd. Pat. App. & Inter. 1988... the hypothetical person is not definable by way of credentials.); MPEP 2141.03.

[0020] Here, one of skill in the art is one who is a person familiar with computer science principles of performance optimization. In particular, one of skill in the art is one who understands computer system clusters, the hardware used to implement them, and configuration requirements in order to identify a best-fit configuration consistent with best practice rules.

OBJECTIVE EVIDENCE OF NON-OBVIOUSNESS

[0021] Applicants respectfully assert that the invention presented in the pending claims is sufficiently distinct from the teachings in Stewart and Dar. The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *In re Keler*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). As previously noted, none of

the references refer to a “performance index,” and in particular to a “current configuration performance index” and a “relative performance index.” Furthermore, Stewart and Dar fail to teach “each hardware model having an **associated relative performance index value**” as currently recited in the independent claims.

[0022] Stewart deals with an optimization system that permits different optimizers to be utilized while storing previous optimization information to provide for reusable data for different configurations. Dar relates to load balancing. Dar uses the term search space but is silent about how this search space is defined or established. Neither reference refers to autonomic evaluations and narrowing of a search space made up of a set of relative performance indexes for a plurality of hardware models.

[0023] The question to consider is would one in the art, when presented with Stewart and Dar, consider modifying the references to establish a search space made up of relative performance indexes for hardware models and progressively narrow the search space by establishing a current configuration performance index value until best-fit configuration is found or not.

[0024] Applicants submit that one in the art would not make such a change. The reference in Dar to a search space is silent regarding the search space being made up of relative performance index values for hardware models. This particular limitation is clarified in Claims 4, 14, and 18. None of these references suggest such a limitation. In addition, none of the references teach or disclose a “best-practice rules” limitation or a “best-fit configuration” limitation as recited in the claims.

[0025] Applicants submit that the features of this invention represent a nonobvious improvement over the art. Therefore, Applicants submit that the evidence weighs in favor of nonobviousness.

CONCLUSION

[0026] In view of the foregoing, Applicants submit that the application is in condition for immediate allowance. In the event any questions or issues remain that can be resolved with a supplemental phone call, the Examiner is respectfully requested to initiate a telephone conference with the undersigned.

Respectfully submitted,

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